

D4
31. (New) A fiber-reinforced article comprised of at least two plies wherein each of said plies comprises (a) rubber and (b) cord made from melt-spinnable, non-metallic, multifilament fiber, said cord having

a twist multiplier of less than or equal to about 375,

a stress at 1% strain greater than or equal to about 1.7 grams/denier, and

an initial compressive modulus greater than or equal to about 7 grams/denier, and

said at least two plies having a ply orientation angle of greater than or equal to about 23° with respect to the longitudinal direction of the article, and wherein said article has substantially no cut cord ends along its longitudinal edges.

Cancel claim 4.

REMARKS

Applicants hereby request reconsideration of the restriction requirement and election of species requirement made by the examiner under 35 U.S.C. 121. Applicants have previously provisionally elected claim Group I, including the species directed to claims 1-6, 9-11 and 13-22, wherein the at least two plies is three plies, and the fiber reinforcement in a third dimension is folds forming the edges of the longitudinal direction. This election was made with traverse. It should be noted that the Commissioner may statutorily require the election of inventions "If two or more independent and distinct inventions are claimed in one application." Applicants submit that the examiner has made no showing of distinctness between the embodiments of claim Groups I-IV, or between the species having three plies or four plies. The legislative history discussed in MPEP 802.01 cannot trump the clear requirement of the statute that requires inventions to be both independent and distinct in order to support a restriction. It is therefore respectfully urged that the restriction and election requirement be rescinded.

The examiner has rejected claims 1-6, 9-11, and 13-22 under 35 U.S.C. 112, second paragraph. It is submitted that this ground of rejection has been overcome by the instant rejection. The examiner's suggestion have been taken with regard to claims 1 and 5. Claim 11 has been

reworded to require folds. In view of this clarification, it is submitted that the 35 U.S.C. 112, second paragraph rejection has been overcome and should be withdrawn

Claim 1 has been amended to include the limitations of claim 4. New claims 29, 30 and 31 represent the former scope of claims 13, 14 and 15 which the examiner indicated to be allowable.

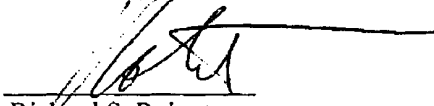
Claims 1-4, 9-11 and 16-22 stand rejected under 35 U.S.C. 102 over British Patent Specification 1,310,316. It is respectfully submitted that this ground of rejection is not well taken. The present invention relates to reinforced rubber articles. More particularly, the invention relates to rubber articles reinforced with non-metallic multifilaments, such as those found in belts for tires, and the like. The claims are directed to a fiber-reinforced article comprised of at least two plies wherein each of said plies comprises (a) rubber and (b) cord made from melt-spinnable, non-metallic, multifilament fiber. The cord has a twist multiplier of less than or equal to about 375, a stress at 1% strain greater than or equal to about 1.7 grams/denier, and an initial compressive modulus greater than or equal to about 7 grams/denier. Further, the at least two plies have a fiber orientation angle of greater than or equal to about 26° with respect to independent claim 1 and the claims dependent therefrom. Compressive modulus depends on two factors, the twist multiplier and the denier per filament. As a filament gets larger, the ability to bend goes up markedly, usually by a power of three to four of the diameter. Bending makes a great difference in compressive modulus. One cannot make a high denier per filament for solution spun filaments. The materials of this invention are characterized as having a large denier per filament. It has been unexpectedly found that an article meeting all of the parameter conditions of the claims has increased resistance to the various stresses that arise during use of the article. British Patent Specification 1,310,316 does not mention or appreciate the importance of compressive modulus. Additionally, they do not mention denier per filament. They certainly do not mention or appreciate the importance of the combination of parameters such as a twist multiplier of less than or equal to about 375, a stress at 1% strain greater than or equal to about 1.7 grams/denier, an initial compressive modulus greater than or equal to about 7 grams/denier, and the at least two plies having a certain ply orientation angle with respect to the longitudinal direction of the article in order to achieve increased resistance to the various stresses that arise

during use of the article. For these reasons it is submitted that this ground of rejection should be rescinded.

The examiner has rejected claims 1-3 and 22 under 35 U.S.C. 102 over Inada et al. Applicants respectfully assert that this ground of rejection has been overcome by the present amendment. Please note that claim 4 has not been rejected over Inada et al. and claim 1 has been modified to include the limitation of claim 4. For these reasons it is submitted that this ground of rejection has been overcome.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the examiner believes there is any matter which prevents allowance of the present application, it is requested that the undersigned be contacted to arrange for an interview which may expedite prosecution.

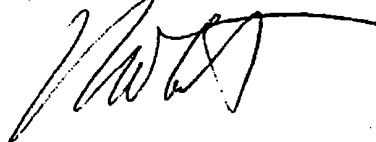
Respectfully submitted,



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I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office (FAX No. 703- 872-9311) on September 30, 2002.

Richard S. Roberts



APPENDIX

MARKED-UP COPY OF AMENDED CLAIMS

1. (Twice Amended) A fiber-reinforced article comprised of at least two plies wherein each of said plies comprises (a) rubber and (b) cord made from melt-spinnable, non-metallic, multifilament fiber, said cord having

a twist multiplier of less than or equal to about 375,

a stress at 1% strain greater than or equal to about 1.7 grams/denier, and

an initial compressive modulus greater than or equal to about 7 grams/denier, and

said at least two plies having a ply orientation angle of greater than or equal to about [23°] 26° with respect to the longitudinal direction of the article.

5. (Twice Amended) The article of claim 1 wherein said at least two plies are three plies, wherein two plies have said ply orientation angle of about 30° and the third ply has a ply orientation angle of about 0°.

11. (Amended) The article of claim 10 wherein said third dimension of reinforcement comprises [stitches or] folds.

29. (New) A fiber-reinforced article comprised of at least two plies wherein each of said plies comprises (a) rubber and (b) cord made from melt-spinnable, non-metallic, multifilament fiber, said cord having

a twist multiplier of less than or equal to about 375,

a stress at 1% strain greater than or equal to about 1.7 grams/denier, and

an initial compressive modulus greater than or equal to about 7 grams/denier, and

said at least two plies having a ply orientation angle of greater than or equal to about 23° with respect to the longitudinal direction of the article;

the article further having fiber reinforcement in a third dimension, wherein said third dimension of reinforcement comprises stitches or folds, and wherein said folds form the edges of the longitudinal direction of the composite.

30. (New) A fiber-reinforced article comprised of at least two plies wherein each of said plies comprises (a) rubber and (b) cord made from melt-spinnable, non-metallic, multifilament fiber, said cord having

a twist multiplier of less than or equal to about 375,

a stress at 1% strain greater than or equal to about 1.7 grams/denier, and
an initial compressive modulus greater than or equal to about 7 grams/denier, and
said at least two plies having a ply orientation angle of greater than or equal to about 23°
with respect to the longitudinal direction of the article;
the article further having fiber reinforcement in a third dimension, wherein said third dimension
of reinforcement comprises stitches or folds, and wherein said third dimension is formed by
braiding.

31. (New) A fiber-reinforced article comprised of at least two plies wherein each of said plies
comprises (a) rubber and (b) cord made from melt-spinnable, non-metallic, multifilament fiber,
said cord having

a twist multiplier of less than or equal to about 375,
a stress at 1% strain greater than or equal to about 1.7 grams/denier, and
an initial compressive modulus greater than or equal to about 7 grams/denier, and
said at least two plies having a ply orientation angle of greater than or equal to about 23° with
respect to the longitudinal direction of the article, and wherein said article has substantially no
cut cord ends along its longitudinal edges.